

EARLY EVIDENCE KITS IN RECENT SEXUAL ASSAULT: SPERMATOZOA DETECTION IN URINE AND OTHER FORENSIC SPECIMENS



Following a recent sexual assault, timely access to both medical and forensic care is vital. Forensic evidence deteriorates rapidly with time and with activities such as eating, drinking, showering and passing urine. If forensic evidence cannot be collected early it may be lost which may prevent identification of an alleged offender.

However, an immediate forensic examination is not always possible due to a lack of forensically trained medical staff, particularly in rural areas or due to concomitant medical and psychosocial requirements, which take priority over the forensic examination.

Early evidence kits (EEK's) for alleged recent sexual assault were introduced in Western Australia by the Sexual Assault Resource Centre (SARC) in 1997 in response to concerns about loss of potential forensic evidence in rural and remote cases where large distances had to be travelled to access a forensic examination. The EEK's allow doctors, nurses and police officers to guide a person through the self-collection of a urine sample and vulval gauze wipe, oral swab and rinse, and peri-anal gauze wipe as indicated, prior to a full medical and forensic examination. If there is a delay prior to the complete forensic examination then the use of the EEK's allow the person to eat, drink and pass urine following the kit being used, without the possibility of losing forensic evidence.

Although the collection of urine for toxicology is well recognised as a forensic specimen in recent sexual assault, the Western Australian EEK kits are unique in collecting urine for both toxicology and for biological testing for sperm and DNA analysis. The research team is not aware of any published studies examining sperm detection in early evidence kit specimens and the collection of a urine specimen for the detection of spermatozoa following alleged recent sexual assault has not been described previously.

Research highlights

One hundred cases of recent sexual assault were identified over the period of September 2008 to March 2012, in which both an EEK and subsequent full forensic specimen collections were carried out.

The frequency of detection of sperm was analysed for each type of sexual assault. Sperm were detected in the EEK specimens in 40 percent of cases of alleged penile-vaginal sexual assault when both a urine sample and a vulval gauze wipe were collected. In the same cases sperm were detected in 45 percent of the full forensic samples. Although sperm were detected in the EEK's in both alleged penile-oral and penile-anal sexual assault, further study is required to investigate the effectiveness of EEK's in these cases as the study sample sizes were small.

Sperm were present in EEK specimens and absent in full forensic specimens in three cases in the study. In the first case, sperm were present in the EEK first void urine at seven hours after alleged penile-vaginal penetration. Sperm were absent in the full forensic specimens collected at 80 hours. A full male DNA profile was recovered from the urine specimen which matched the DNA profile of the "person of interest" on the WA DNA database.

In the second case sperm were present in the EEK gauze wipe vulva at one hour after alleged penile-vaginal penetration. Sperm were absent in the full forensic specimens collected at ten hours. A mixed DNA profile was recovered from the vulval gauze wipe and the "person of interest" could not be excluded as a possible contributor to the mixed DNA profile.

In the third case sperm were present in the EEK first void urine, gauze wipe vulva and perianal gauze wipe at nine hours after alleged penile-anal penetration. Sperm were absent in the full forensic specimens collected at 34 hours. A mixed DNA profile with a male partial DNA profile being the major component was recovered from the EEK first void urine sample.

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Research achievements

- Recommendation that Early Evidence Kit collection should be offered not as an alternative to, but as an addition to full forensic specimen collection. Early Evidence Kit collection may be particularly important if there is a delay in accessing a forensic examination, for example in rural and remote areas.
- Collection of both Early Evidence Kit and full forensic specimens led to a greater number of cases in which sperm were detected.
- Identification that a urine sample is a worthwhile forensic specimen for the detection of sperm in cases of alleged recent penile-vaginal penetration.
- Identification that a single urine sample can be used for both sperm detection and DNA analysis and for toxicology.
- Finding that in alleged recent penile-vaginal penetration, when both urine and vulval gauze wipe specimens are collected as part of an early evidence kit, sperm were detected in 40 percent of cases.

This study was carried out in collaboration with the WA Police and PathWest Forensic Biology.

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